

REMARKS

I. Status of Claims

Prior to entry of this paper, **Claims 1-25, 27 and 28** were pending. **Claims 1-25, 27 and 28** were rejected. In this paper, Claims 1, 8, 12, 24, 25, and 27 are amended. Claims 1-25 and 27-28 are currently pending. No new matter is added by way of this amendment. For at least the following reasons, it is respectfully submitted that each of the presently pending claims is in condition for allowance.

II. Claim Rejections - 35 U.S.C. § 101

Claim 25 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

With this paper, **Claim 25** has been amended to recite “computer readable storage medium”. Support for this amendment can, for example, found on lines 6-7 of page 5 of the specification as originally filed. This section of the specification identifies at least two types of computer readable media, including “computer storage media” and “communications media”. As amended, Claim 25 refers to the former of these two types. The portions of the specification cited in the explanation of the rejection under 35 U.S.C. §101, however, refer to the latter of these two types. For example, see page 5, lines 8-11, of the specification, as originally filed, which notes that “carrier wave” is an embodiment of “communication media”. Again, “communication media” is differentiated in the specification from “computer storage media”. As amended, it is respectfully submitted that Claim 25 claims a computer-readable storage medium that is encoded with instructions and defines structural and functional interrelationships which permit the instruction’s functionality to be realized. As such, it is respectfully submitted that Claim 25, as amended, is statutory and withdrawal of the rejection under 35 U.S.C. §101 is respectfully requested.

III. Claim Rejections - 35 U.S.C. § 103

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al., U.S. Patent No. 6,370,620 (hereafter “Wu”), in view of Scharber, U.S. Patent No. 6,542,964, (hereafter “Scharber”) and Lamburt et al., U.S. Patent No. 6,374,241, (hereafter “Lamburt”).

With this paper, **Claim 8** has been amended to clarify at least one distinction, and thus patentability, for the claimed invention over the prior art of record. Specifically with regard to at least Claim 8, the nature of the claimed frequency of requests has been clarified to refer to a common frequency of requests for a plurality of different content in a content set. Support for this amendment can be found throughout the specification, and particularly on page 15, lines 14-20.

As amended, Claim 8 at least includes the limitation:

determining a frequency of requests summed from requests for all content of a plurality of different static content in a content set, wherein a determination of content generation information included within the request determines a static type of the requested content

After carefully reviewing the references previously applied, it is respectfully submitted that at least this limitation is not taught or suggested by the cited prior art, including when considered with the other limitations of Claim 8 as a whole. As noted previously, Wu discloses “the front-end router 803 should service only requests for *a given object* that exhibit reference locality, in other words, requests for *a given object* that occur closely enough together in time to justify devoting space in the cache to storing that given object. One approach to identifying requests for such objects is to count the requests for *a given non-assigned-partition object 103*.” Wu, Col, 6, line 48-54. For each *single* reference count, Wu takes into account the requests for a *single* “given object”. Wu does not teach or suggest one “reference count” referring to a plurality of objects. In contrast to Wu, the claimed invention as further represented in Claim 8 comprises “a frequency of requests summed from requests for all content of a plurality of different static content in a content set”. As such, it is respectfully submitted that Wu does not teach or suggest this limitation.

Moreover, Wu in combination with Scharber and Lamburt does not teach or suggest this limitation either. Scharber merely notes “content”, but does not teach or suggest a common

frequency associated with a plurality of different static content(see, for example, col. 6, lines 50-52 of Scharber). “Hot” and “cold” are referenced in Lamburt with regard to “Least Recently Used”, which lacks reference to even a count, much less the frequency and plurality of content as claimed (col. 27, lines 36-40 of Lamburt). For this reason, it is respectfully submitted that the prior art references, even when considered in combination with each other, do not teach or make obvious the claimed invention of amended Claim 8. Accordingly, withdrawal of the rejection of Claim 8 under 35 U.S.C. §103(a) is respectfully submitted.

So far as **Claims 9 and 10** depend from Claim 8, it is respectfully submitted that these claims are not taught or suggested for at least the same reasons presented herein with regard to Claim 8. Accordingly, withdrawal of these rejections is also respectfully requested.

With additional regard to **Claim 10**, it is further noted that Wu does not teach or suggest particularly the notion of “a third request” in the limitation of “when the content is unavailable from the second cache, a third request for the content is forwarded over the network to a content server”. The portion of Wu cited in the Office Action, lines 4-28 of column 6, refers to *one* request. This *single* request is the same one that is initially received and then re-directed or returned (col. 6, lines 6, 21, and 25). As such, Wu does not teach or suggest “another” request, much less a “third request” as further claimed in at least Claim 8. For this additional reason, withdrawal of the rejection under 35 U.S.C. §103(a) of Claim 10 is also respectfully requested.

Claims 12, 14-17, 19, 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of Scharber, Lamburt and Banerjia et al., U.S. Patent Publication No. 2001/0049818, (hereafter “Banerjia”).

With this paper, **Claims 12 and 25** have been amended to clarify at least one distinction, and thus patentability, for their respective claimed inventions over the prior art of record. Specifically with regard to at least Claim 12, the nature of forwarding of requests has been clarified to refer to a comparison made between a received request and a previously forwarded request. Support for this amendment can be found throughout the specification, and particularly on page 18, lines 11-24.

As amended, Claim 12 at least includes the limitation:

a forwarder that receives each request for content in the system and forwards each request over the network to at least one of a content server and one of a plurality of caches including at least a hot cache and a regular cache based on ... a determination of a request for content coming from a cache in the plurality of caches to which the forwarder previously forwarded a request for the content

After carefully reviewing the references previously applied, it is respectfully submitted that at least this limitation is not taught or suggested by the cited prior art, including when considered with the other limitations of Claim 12 as a whole. The server 4 of Wu handles a current request in terms of the immediate source of the request (steps 402, col. 4, lines 53-55). Assessment of information regarding previous requests that the same server forwarded is not performed by the server. After forwarding a request, the server 4 “waits for the object”, not another request (col. 4, lines 58 and 63-64). Figure 6 involves the handling of waited upon object, which again, is not a request (col. 4, lines 65-67). Similar to server 4, the front-end router 803 of Figure 9 of Wu distributes or forwards requests, but does not incorporate information regarding its own previous actions (col. 6, lines 40-41 and 54-59).

In contrast, the claimed invention as further represented in Claim 12 at least includes a forwarder that forwards each received request based on, among other determinations, “a determination of a request for content coming from a cache in the plurality of caches to which the forwarder previously forwarded a request for the content”. The same forwarder handles requests for the same content from both a client and at least one cache, the latter of which previously received a request for the same content. It is respectfully submitted that Wu does not teach or suggest at least this limitation.

Moreover, Wu in combination with Scharber and Lamburt and Banerjia does not teach or suggest this limitation either. Scharber discloses a cache 30 that receives responses from other caches, but not requests (col. 4, lines 37-51 of Scharber). Lamburt discloses that items are detected in a cache based on a cache name for a query (col. 31, lines 10-24). Banerjia discloses a system that handles the execution of translations and, as such, does not involve a forwarder that forwards requests, much a request for content from a cache that was a previous recipient of such a request (paragraph [0024]). For this reason, it is respectfully submitted that the prior art references, even when considered in combination with each other, do not teach or make obvious the claimed

invention of amended Claim 12. Accordingly, withdrawal of the rejection of Claim 12 under 35 U.S.C. §103(a) is respectfully requested.

So far as **Claim 25** has been amended to include a similar, albeit different limitations, it is respectfully submitted that this claim is also not taught or suggested for at least the same reasons presented herein with regard to Claim 12. Accordingly, withdrawal of this rejection of Claim 25 under 35 U.S.C. §103(a) is also respectfully requested.

So far as **Claims 14-17, 19, and 21** depend from Claim 12, it is respectfully submitted that these claims are not taught or suggested for at least the same reasons presented herein with regard to Claim 12. Accordingly, withdrawal of these rejections is also respectfully requested.

Claims 1, 24 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trout, U.S. Patent No. 5,566,349 (hereafter "Trout"), in view of Lamburt, Scharber and Banerjia.

With this paper, **Claim 1** has been amended to clarify at least one distinction, and thus patentability, for the claimed invention over the prior art of record. Specifically with regard to at least Claim 1, the nature of forwarding of requests has been clarified to refer to different requested generated by different caches in the hierarchy. Support for this amendment can be found throughout the specification, and particularly on page 14, lines 10-18.

As amended, Claim 1 at least includes the limitation:

forwarding the request over the network to the plurality of caches that enable access to the static content further comprises recursively forwarding requests, generated from different caches in the hierarchy based on the received request, through the hierarchy until a frequency of the request for static content exceeds a threshold associated with the hot cache

After carefully reviewing the references previously applied, it is respectfully submitted that at least this limitation is not taught or suggested by the cited prior art, including when considered with the other limitations of Claim 1 as a whole. Trout does not teach or suggest forwarding a request, much less performing any form of recursive forwarding of requests from different caches; rather, data is simply retrieved from a data cache using a routine (col. 12, lines 9-11 of Trout). The Office Action mailed December 11, 2007, acknowledges that Trout does not teach such a limitation

on page 10, lines 4-7. However, this limitation is neither taught or suggested – or even addressed – by the remaining grounds of rejection. As noted above, Scharber discloses a cache 30 that receives responses from other caches 34, but not requests from different caches based on the initially received request (col. 4, lines 37-51 of Scharber). Lamburt discloses that items are detected in a cache based on a cache name for a query, which fails to even suggest the claimed form of recursive forwarding (col. 31, lines 10-24). Banerjia discloses a system that handles the execution of translations and, as such, does not involve a forwarder that forwards requests, much a request for content from a cache that was a previous recipient of such a request (paragraph [0024]). For this reason, it is respectfully submitted that the prior art references, even when considered in combination with each other, do not teach or make obvious the claimed invention of amended Claim 1. Accordingly, withdrawal of the rejection of Claim 1 under 35 U.S.C. §103(a) is respectfully submitted.

Claims 24 and 27 have been amended to include a similar, albeit different limitations. Claim 24 claims forwarding a request for content to a lower level cache, even though the content is associated with a higher frequency of request. Claim 27 explicitly recites sending and receiving requests for the same content with a cache. As noted above for Claim 1, none of the cited prior art teaches or suggests the exchange and forwarding of requests as further claimed in these claims. Simply retrieving data or receiving a response, as performed in the applied prior art, does not teach or suggest the different limitations as claimed in these claims. For reasons similar to those presented herein with regards to Claims 1, and even Claim 12, withdrawal of the rejections of these claims is respectfully requested. Withdrawal of the rejection of Claim 28 is respectfully requested in light of at least the reasons presented herein with regards to its parent claim, Claim 27.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trout, Scharber, Lamburt and Banerjia, further in view of Factor et al., U.S. Patent No. 6,094,706, (hereafter “Factor”). However, as discussed above, amended Claim 1, from which Claim 2 depends, is not taught or suggested by Trout, Lamburt, Scharber, and Banerjia. Moreover, Factor alone or in

combination with the other references does not teach or suggest amended Claim 1. Therefore, for at least similar reasons as for amended Claim 1, withdrawal of this rejection is respectfully requested.

Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Trout, Lamburt, Scharber and Banerjia and further in view of U.S. Patent No. 5,590,301 to Guenthner et al. (“Guenthner”). As discussed above, amended Claim 1, from which Claim 3 depends, is not taught or suggested by Trout, Lamburt, Scharber, and Banerjia. Moreover, Guenthner alone or in combination with the other references does not teach or suggest amended Claim 1. Therefore, for at least similar reasons as for amended Claim 1, withdrawal of this rejection is respectfully requested.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trout, Scharber, Lamburt and Banerjia, further in view of McCanne, U.S. Patent No. 6,785,704, (hereafter “McCanne”). However, as discussed above, amended Claim 1, from which Claim 4 depends, is not taught or suggested by Trout, Lamburt, Scharber, and Banerjia. Moreover, McCanne alone or in combination with the other references does not teach or suggest amended Claim 1. Therefore, for at least similar reasons as for amended Claim 1, withdrawal of this rejection is respectfully requested.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trout, Scharber, Lamburt and Banerjia, further in view of Kimura et al., U.S. Patent No. 6,415,359, (hereafter “Kimura”). However, as discussed above, amended Claim 1, from which Claim 5 depends, is not taught or suggested by Trout, Lamburt, Scharber, and Banerjia. Moreover, Kimura alone or in combination with the other references does not teach or suggest amended Claim 1. Therefore, for at least similar reasons as for amended Claim 1, withdrawal of this rejection is respectfully requested.

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trout, Scharber, Lamburt and Banerjia, further in view of Dujari, U.S. Patent No. 6,233,606, (hereafter “Dujari”). As discussed above, amended Claim 1, from which Claims 6-7 depend, is not taught or suggested by Trout, Lamburt, Scharber, and Banerjia. Moreover, Dujari alone or in combination with the other references does not teach or suggest amended Claim 1. Therefore, for at least similar reasons as for amended Claim 1, withdrawal of this rejection is respectfully requested.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, Scharber, Lamburt, as applied to Claim 10 above, in view of Cohen et al., U.S. Patent No. 6,330,561, (hereafter "Cohen"). As discussed above, amended Claim 8, from which Claim 11 depends, is not taught or suggested by Wu and Scharber, and Lamburt. Moreover, Cohen alone or in combination with the other references does not teach or suggest amended Claim 8. Therefore, for at least similar reasons as for amended Claim 8, withdrawal of this rejection is respectfully requested.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, Scharber, Lamburt and Banerjia as applied to Claim 12 above, in view of Cohen and Sharma, U.S. Patent No. 6,591,341, (hereafter "Sharma"). As discussed above, amended Claim 12, from which Claim 13 depends, is not taught or suggested by Wu, Scharber, Lamburt, and Banerjia. Moreover, Sharma alone or in combination with the other references does not teach or suggest amended Claim 12. Therefore, for at least similar reasons as for amended Claim 12, withdrawal of this rejection is respectfully requested.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, Scharber, Lamburt, and Banerjia as applied to Claim 16 above in view of Factor. As discussed above, amended Claim 12, from which Claim 18 depends, is not taught or suggested by Wu, Scharber, and Lamburt, and Banerjia. Moreover, Factor alone or in combination with the other references does not teach or suggest amended Claim 12. Therefore, for at least similar reasons as for amended Claim 12, withdrawal of this rejection is respectfully requested.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, Scharber, Lamburt and Banerjia as applied to Claim 12 above in view of Sharma. As discussed above, amended Claim 12, from which Claim 20 depends, is not taught or suggested by Wu, Scharber, Lamburt, and Banerjia. Moreover, Sharma alone or in combination with the other references does not teach or suggest amended Claim 12. Therefore, for at least similar reasons as for amended Claim 12, withdrawal of this rejection is respectfully requested.

Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu, Scharber, Lamburt and Banerjia as applied to Claim 12 above in view of Dujari. Applicants respectfully traverse this rejection. As discussed above, amended Claim 12, from which Claims 22-23 depend, is not taught or suggested by Wu, Scharber, Lamburt, and Banerjia. Moreover, Dujari alone or in combination with the other references does not teach or suggest amended Claim 12. Therefore, for at least similar reasons as for amended Claim 12, withdrawal of this rejection is respectfully requested.

IV. Conclusion

In view of the above amendment, applicant's representative believes the pending application is in condition for allowance.

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Respectfully submitted,

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